

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) ~~Method~~ A method of patenting at least one steel wire, comprising the steps of:

- ~~a rise in temperature of the heating~~ said at least one steel wire ~~up to to an~~ austenitisation temperature ~~of the of~~ steel,

- ejecting pressurised gas bubbles into a mass of cooling liquid, in a manner which is guided upwards, and entraining said cooling liquid by said bubbles in a form of at least one cooling liquid curtain with an upward turbulent flow,

- abruptly an abrupt cooling said at least one wire, ~~in a liquid medium, of the said at least one wire in~~ said cooling liquid which has reached ~~the said said~~ austenitisation temperature, by passing ~~the said said~~ at least one steel wire through said at least one cooling liquid curtain ~~in which the latter exhibits a,~~

the at least one cooling liquid curtain exhibiting said upward turbulent flow being oriented substantially transversely to the said said at least one moving wire, with the while obtaining of a cooling a cooling temperature situated below the austenitisation temperature and above ~~the martensitic~~ a martensitic transformation temperature,

- adjusting a successive number of the cooling liquid curtains, the number being determined so as to obtain, by the said cooling said wire in said cooling liquid, a perlitic transformation temperature to be maintained during a step of maintaining said at least one wire in an isothermal state, as the cooling temperature; and

- ~~an isothermal maintenance of the performing the step of maintaining~~ said at least one steel wire in the isothermal state at a ~~at the~~ perlitic transformation temperature ~~up to the end of this until completion of a perlitic transformation,~~

~~characterised in that it also comprises~~

~~an adjustment of a number of above mentioned successive curtains which is determined so as to obtain, by the said cooling in a liquid medium, the said perlitic transformation temperature to be maintained during the isothermal maintenance step, as the above mentioned cooling temperature, and~~

wherein the above mentioned isothermal maintenance step of maintaining said at least one steel wire in the isothermal state is performed directly following the step of cooling in a ~~in the cooling liquid medium.~~

2. (Cancelled)

3. (Currently Amended) ~~Method~~ The method according to ~~Claim 2,~~ characterised in ~~that claim 1, wherein~~ the upward turbulent ~~flow~~ flowing cooling liquid curtains have a top, ~~and in that the method also comprises,~~ comprising the step of:

passing said at least one steel wire through the cooling liquid curtains as the cooling liquid falls from the said said top and along at least on one one side of each of rising the

upward flowing turbulent flow curtain cooling liquid curtains, ~~a fall of liquid with turbulent flow through which the said at least one steel wire also passes.~~

4. (Currently Amended) ~~Method~~ The according to Claim 3, ~~characterised in that~~
~~above-mentioned falls of~~ wherein the falling cooling liquid with the turbulent flow liquid
coming from ~~the top~~ the tops of ~~two above-mentioned two~~ successive upward flowing
turbulent cooling liquid curtains cross each other at least partially ~~where the in positions~~
where said at least one steel wire passes.

5. (Cancelled)

6. (Currently Amended) ~~Method~~ The method according to claim 1, ~~characterised in~~
~~that~~ wherein the cooling liquid is water.

7. (Currently Amended) ~~Method~~ The method according to claim 1, ~~characterised in~~
~~that~~ wherein the wires to be patented have a cross-section with a diameter of less than 15 mm.

8. (Currently Amended) ~~Method~~ The method according to claim 1, ~~characterised in~~
~~that~~ wherein the pressure of the gas bubbles is greater than a column formed by the mass of
cooling liquid.

9. (Currently Amended) ~~Device~~ A device for implementing the method according to claim 1, comprising

- a furnace ~~(25) for~~ for austenitising ~~the said said~~ at least one steel wire,
- means ~~(23, 24) of~~ for driving ~~the said said~~ at least one steel wire ~~(3; 26)~~ in movement,

- means ~~(7-9, 14, 15, 16) of spraying at least one curtain of~~ for ejecting pressurised gas bubbles into said cooling liquid in a manner which is guided upwardly and for entraining said cooling liquid by said bubbles in the form of the at least one cooling liquid curtain which the latter has a,

the upward turbulent flow of the at least one cooling liquid curtain being oriented substantially transversely to the said said at least one moving wire, in order to cool the at least one moving wire ~~latter in a in the cooling liquid curtains medium to the to~~ said cooling temperature situated below the austenitisation temperature and above the martensitic transformation temperature, and

- a tank containing the cooling liquid and the means of ejecting said pressurised gas bubbles into the cooling liquid, the tank being disposed below said at least one moving wire,

- means for adjusting a number of successive cooling liquid curtains through which said at least one moving wire passes in order to reach said perlite transformation temperature, by way of said cooling temperature,

- a temperature maintenance chamber ~~(31)~~ for the wires which have reached the said perlitic transformation temperature,

~~characterised in that it also comprises~~

~~- means (22) of adjusting the number of successive curtains of cooling liquid to be passed through by the said at least one moving wire in order to reach the said perlitic transformation temperature, by way of cooling temperature, and~~

- ~~an arrangement of wherein~~ the temperature maintenance chamber is arranged directly ~~at the~~ at an exit from the at least one cooling liquid curtain situated furthest downstream with respect to the movement of ~~the said~~ said at least one wire.

10. (Cancelled)

11. (Currently Amended) ~~Device~~ A device according to ~~Claim 10~~ Claim 9, ~~characterised in that it also comprises~~ the device further comprising:

~~, above the said at least one moving wire,~~

- deflector means (20, 21) disposed above said at least one moving wire ~~which divert~~ for diverting the upward turbulent flow ~~of the above-mentioned flowing cooling liquid~~ curtains towards at least one side of each ~~curtain of the curtains~~ so as to form from there at least one turbulent flow fall of the cooling liquid through which ~~the said~~ said at least one steel wire passes.

12. (Currently Amended) ~~Device~~ A device according to ~~claim 10~~ claim 9,
~~characterised in that~~ wherein the temperature maintenance chamber (31) ~~is~~ is mounted so as
to be able to move horizontally over the ~~tank (1)~~ tank according to the number of liquid
curtains in service.